ELECTRONIC DEVICE THAT COMPUTES HEALTH DATA

CROSS-REFERENCE TO RELATED APPLICATION

This application claims the benefit under 35 U.S.C. §119 (e) of U.S. Provisional Patent Application No. 62/056,299, filed on Sep. 26, 2014, and entitled "Electronic Device that Computes Health Data," which is incorporated by reference as if fully disclosed herein.

TECHNICAL FIELD

This disclosure relates generally to health data, and more specifically to an electronic device that computes health data

BACKGROUND

It may be beneficial for a user to have information about his or her health data, including fitness data and wellness data. For example, health data may indicate emergency conditions or to enable the user to maximize fitness or wellness activities. Traditionally, health data is provided to users by health care professionals. However, it may be beneficial for users to have more access to health data.

SUMMARY

The present disclosure discloses systems, apparatuses, and methods related to an electric device that computes health data. An electronic device may include a camera, an ambient light sensor, and a proximity sensor. The electronic device may use one or more of the camera and the proximity sensor to emit light into a body part of a user touching a surface of the electronic device and one or more of the camera, the ambient light sensor, and the proximity sensor to receive at least part of the emitted light reflected by the body part of the user. The electronic device may compute health data of the user based upon sensor data regarding the received light. In some implementations, the electronic device may also include one or more electrical contacts that contact one or more body parts of the user. In such implementations, the health data may be further computed based on the an electrical measurement obtained using the electrical contacts.

In some implementations, the electronic device may utilize the camera to determine the user's body part is misaligned with the camera, the ambient light sensor, and the proximity sensor for purposes of detecting the information about the body part of the user. In such implementations, the electronic device may provide guidance to correct the misalignment.

In various embodiments, a mobile personal computing device may include a camera, an ambient light sensor, a proximity sensor, and a processing unit communicably coupled to the camera, the ambient light sensor, and the proximity sensor. The processing unit may be configured to: use at least one of camera and a proximity sensor to emit light into a body part of a user touching a surface of the mobile personal computing device; use at least one of the camera, an ambient light sensor, or the proximity sensor to receive at least part of the emitted light reflected by the body part of the user and generate sensor data; and computing health data of the user, utilizing the processing unit, using at least the sensor data regarding the received light.

In some embodiments, a method for using a mobile personal computing device to obtain health data may include: using at least one of camera and a proximity sensor to emit light into a body part of a user touching a surface of the device; using at least one of the camera, an ambient light sensor, or the proximity sensor to receive at least part of the emitted light reflected by the body part of the user and generate sensor data; and computing health data of the user, utilizing the processing unit, using at least the sensor data regarding the received light.

In one or more embodiments, a method for guiding use of a mobile personal computing device to obtain health data may include: detecting, utilizing a camera, a profile of a body part of a user contacting the camera; determining, using the profile, if the body part is misaligned with a combination of the camera, an ambient light sensor, and a proximity sensor for purposes of obtaining health data for the user; and providing guidance to correct the misalignment.

In various embodiments, a computer program product including a non-transitory storage medium may include a first set of instructions, stored in the non-transitory storage medium, executable by at least one processing unit to use at least one of a camera and a proximity sensor to emit light into a body part of a user touching a surface of a mobile personal computing device; a second set of instructions, stored in the non-transitory storage medium, executable by the least one processing unit to use at least one of the camera, an ambient light sensor, or the proximity sensor to receive at least part of the emitted light reflected by the body part of the user and generate sensor data; and a third set of instructions, stored in the non-transitory storage medium, executable by the least one processing unit to compute health data of the user using at least the sensor data regarding the received light.

It is to be understood that both the foregoing general description and the following detailed description are for purposes of example and explanation and do not necessarily limit the present disclosure. The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate subject matter of the disclosure. Together, the descriptions and the drawings serve to explain the principles of the disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an isometric view an example system for obtaining health data utilizing an electronic device.

FIG. **2** illustrates the view of FIG. **1** while the example system is being utilized to obtain health data.

FIG. **3** illustrates the view of FIG. **2** while the example system is providing guidance to obtain health data.

FIG. **4** illustrates the view of FIG. **2** while the example system is providing the obtained health data.

FIG. **5** is a flow chart illustrating an example method for using an electronic device to obtain health data. This method may be performed by the system of FIG. **1**.

FIG. **6** is a flow chart illustrating an example method for guiding use of an electronic device to obtain health data. This method may be performed by the system of FIG. **1**.

FIG. **7** is a block diagram illustrating functional relationships among components of the example system of FIG. **1**.

DETAILED DESCRIPTION

The description that follows includes sample systems, apparatuses, and methods that embody various elements of